TOXWATCH STUDY LIMITATIONS

Before reading and interpreting the results of the ToxWatch study, it is important to note the limiting factors and areas of uncertainty in data collection and analysis. The following are limitations of the ToxWatch Study:

- The study compares mean monitored concentrations to US EPA CEP benchmarks for both cancer and non-cancer health effects. These benchmarks are not "bright lines' between pollutant concentrations with and without effects but rather were used because they represent levels below which health effects are not expected.

  These benchmarks were used for comparative purposes only and do not indicate specific risks associated with exposure to monitored toxic air pollutants. Additionally, the benchmarks assume continuous exposure over a seventy-year period to the specific compound while the sampling methodology is based on intermittent samples collected over a very short period (6 months to 2 years). The benchmarks include a built in margin of safety that may be too conservative or may not be adequate to protect sensitive populations. Finally, in some cases, US EPA's calculated CEP benchmarks are below the detection levels of the analytical methods used in the ToxWatch study.

- Use of the aggregate relative hazard values to draw conclusions is limited by uncertainties including the appropriateness of the underlying benchmarks. In addition, as a simple summation of the relative hazard values for individual monitored pollutants, they do not address possible synergistic effects resulting from exposure to multiple pollutants.

- The Study did not include an exposure assessment. Therefore, the contents of this report should not be construed to imply or represent any specific findings with respect to risks associated with exposure to the monitored pollutants.

- This Study only evaluates ambient air concentrations of a limited number of pollutants and does not account for indoor exposure, other routes of exposure such as ingestion, or cumulative exposure to multiple pollutants.

- This Study did not attempt to assess health data or make any linkages between disease incidences and environmental data.

- Several toxic air pollutants of interest nationally were not monitored in the study, including formaldehyde, metals, and diesel particulate. Recent studies suggest that these pollutants may cause significant health effects, especially in sensitive populations.

- The use of mean monitored concentrations in the analysis may not be representative of actual conditions at any given point in time.

- Other data uncertainties exist including whether data collected on an intermittent sampling schedule are representative of typical air quality, sensitivity of the sampling instruments, possible seasonal variability, meteorology, the number of invalid

samples at some monitoring stations, especially the six-month community monitoring stations.

- Comparisons of the ToxWatch data to US EPA's NATA must be made with caution because the studies use different assumptions and base years. The ToxWatch data are summarized as mean monitored concentrations over a time period, either six-months or two years. These data were collected from 1999 through 2001. US EPA's NATA was based on modeled pollutant concentrations using 1996 TRI data. When comparing these data sets, two important points need to be made. First, several new federal emission standards targeting sources of toxic air pollutants were implemented during the period between 1996 and 2001. Therefore, the emissions information used in the model may be outdated, making the model projections unreliable. Second, there is limited overlap in pollutants monitored in the ToxWatch Study and those modeled as part of US EPA's NATA. In some cases, the model projections are below the detection levels of the analytical methods used in the ToxWatch Study.